

Name: _____ Period: _____

5-7 Skills Practice Part 1

Roots and Zeros

Solve each equation. State the number and type of roots.

1. $5x + 12 = 0$

2. $x^2 - 4x + 40 = 0$

3. $x^5 + 4x^3 = 0$

4. $x^4 - 625 = 0$

5. $4x^2 - 4x - 1 = 0$

6. $x^5 - 81x = 0$

Use your calculator to find all the rational real zeros of each function and then use synthetic division to reduce to a quadratic and solve.

7. $h(x) = x^3 - 5x^2 + 5x + 3$

8. $g(x) = x^3 - 6x^2 + 13x - 10$

9. $h(x) = x^3 + 4x^2 + x - 6$

10. $q(x) = x^3 + 3x^2 - 6x - 8$

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5-7 Skills Practice Part 2

Roots and Zeros

Use your calculator to find all the rational real zeros of each function and then use synthetic division to reduce to a quadratic and solve.

11. $g(x) = x^4 - 3x^3 - 5x^2 + 3x + 4$

12. $f(x) = x^4 - 21x^2 + 80$

Write a polynomial function of least degree with integer coefficients that have the given zeros.

13. $-3, -5, 1$

14. $3i$

15. $-5 + i$

16. $-1, \sqrt{3}, -\sqrt{3}$

17. $i, 5i$

18. $-1, 1, i\sqrt{6}$